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EXAMINER

WOO, ISAAC M

ART UNIT	PAPER NUMBER
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2172

DATE MAILED: 05/22/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/684,907

Applicant(s)

THOMPSON ET AL.

Examiner

Isaac M Woo

Art Unit

2172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-19 and 21-30 is/are pending in the application.
- 4a) Of the above claim(s) 20 is/are ~~withdrawn from consideration~~ canceled.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 21-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 07 March 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to Applicant's amendments on March 07, 2003 have been considered but are deemed moot in view of new ground of rejections below.
2. The applicant canceled claim 20, added new claims 21-30. And the pending claims are 1-19 and 21-30.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quintero et al (U.S. Patent No. 5,293, 479, hereinafter, "Quintero").

With respect to claim 1, Quintero discloses configuration system (product designing with components assembling, col. 1, lines 10-17, col. 4, lines 53-61), user interface (expert user interface, col. 8, lines 59-67 to col. 9, lines 1-29), wherein the user interface receives input data for a desired configuration (col. 4, lines

53-67 to col. 5, lines 1-24, Note: design tool with user interface designs and assemblies components for any configuration, col. 9, lines 29-37), see (108, FIG. 1, FIG. 6, FIG. 7A, col. 4, lines 7-67 to col. 5, lines 1-37); and

receiving data input from the user interface (expert user interface, col. 8, lines 59-67 to col. 9, lines 1-29), and outputs configuration data to the user interface (FIG. 1A-D) in response to a frame-based inference (inference engine, col. 8, lines 37-64, col. 9, lines 29-37, col. 15, lines 45-57, col. 2, lines 9-25, Note: inference engine includes component (frame is a basic component of furniture, col. 4, lines 3-25, col. 9, lines 28-37) selecting and connecting, thus, auto frame connection is done by inference engine) of the input data, see (col. 9, lines 65-67 to col. 10, lines 1-33). Quintero does disclose the frame assembling, see (FIG. 1A-D, col. 2, lines 46-50, col. 4, lines 12-25). Quintero does not explicitly disclose the "frame engine". However, the definition of engine is an analogous piece of software or program functions. And disclosed system is a configuration and assembling (e.g., designing furniture processing) basic component of frame of furniture. And system of Quintero assembles frames by software functions. Therefore, it would have been obvious a person having ordinary skill in the art the time invention was made to include the frame engine in the system of Quintero. Because the software program function assembles the frame component to make the furniture product using CAD (computer aided design).

With respect to claim 2, Quintero discloses the database coupled to the frame engine (as discussed above in claim1), storing configuration data selectively retrieved for output in response to inferences made by the frame engine, see (col. 9, lines 8-59).

With respect to claim 3, Quintero discloses the frame engine subjects configuration data to be output to the user interface to pertinent rule-based inferences (col. 7, lines 47-67 to col. 8, lines 1-67) before being output to the user interface, see (col. 8, lines 36-67 to col. 9, lines 1-59).

With respect to claim 4, Quintero discloses the rule engine, coupled to the frame engine, wherein the rule engine subjects selected configuration data to be output to the user interface to pertinent rule-based inferences before being output to the user interface, see (col. 8, lines 36-67 to col. 9, lines 1-59).

With respect to claims 5 and 18, Quintero discloses that the frame engine represents data concerning configuration in a hierarchical structure, with frame corresponding to configuration categories, wherein the frames acts as node of the hierarchical structure containing a collection of slots corresponding to configuration features and options, see (col. 12, lines 64-67 to col. 13, lines 1-12).

With respect to claim 6, Quintero discloses that the database stores data representative of product knowledge pertaining to products that may be configured by the system, see (col. 18, lines 55-67 to col. 19, lines 1-67 to col. 20, lines 1-63).

With respect to claim 7, Quintero discloses that the database stores a plurality of questions for selectively output the user interface based on frame-based inferences made by the frame engine in response to answers (col. 9, lines 65-67 to col. 10, lines 1-24) input through the user interface, see (col. 18, lines 55-67 to col. 19, lines 1-67 to col. 20, lines 1-63).

With respect to claim 8, Quintero discloses that the system comprising:
data analysis subsystem pertaining analysis of configuration data to be output to the user interface, see (col. 8, lines 58-67 to col. 9, lines 1-67 to col. 10, lines 1-63),
graphics formatting output subsystem providing graphical representations of configuration data output to the user interface, see (col. 8, lines 58-67 to col. 9, lines 1-67 to col. 10, lines 1-63).

With respect to claim 9, Quintero discloses that the data analysis subsystem comprises a pricing engine providing data corresponding to the configuration data output to the user interface, see (FIG. 5, FIG. 13A-B, FIG. 14, col. 2, lines 9-36).

With respect to claim 10, Quintero discloses that the graphics formatting output subsystem comprises a parametric drawing engine providing illustrations of configuration data to the user interface, see (col. 8, lines 58-67 to col. 9, lines 1-67 to col. 10, lines 1-63).

With respect to claim 11 and 17, Quintero discloses that the method and article of manufacturing for machine-readable storage medium of configuring a project, accessing a user interface, see (expert user interface, user command, col. 8, lines 59-67 to col. 9, lines 1-29, col. 13, lines 24-34);

initiating a project for configuration, see (design project, col. 6, lines 37-48, col. 19, lines 33-42); configuring (design) the project by entering in response to project selections, see (col. 4, lines 33-62, col. 6, lines 37-48); in response to project made in the configuring step, see (col. 4, lines 33-62, col. 6, lines 37-48); and

outputting project configuration data to the user interface based on inferences (inference engine, col. 9, lines 28-37) made, see (expert user interface, output tools and graphic system (col. 9, lines 37-59) are used to display output of configuration and all designing procedures, see (FIG. 1A-D, col. 8, lines 58-67 to col. 9, lines 1-37, col. 9, lines 65-67 to col. 10, lines 1-33). Quintero does not explicitly disclose the frame-based inference. However, disclosed system is a design tool for product (e.g., designing furniture) using computer aided design (CAD) software system. And a frame is a basic component of furniture designing (col. 4, lines 12-25). The inference engine includes component (frame) selecting and connecting, thus, auto frame connection is done by

inference engine, see (col. 8, lines 37-64, col. 9, lines 29-37, col. 15, lines 45-57, col. 2, lines 9-25), which means that the designing (connecting and assembling) each component (frame) is done by rule base inference engine. Therefore, it would have been obvious a person having ordinary skill in the art the time invention was made to include the frame-based inference in the system of Quintero to perform the auto-designing using knowledge based inference engine. Because the frame-based inference engine selects and applies rules from rule base automatically, which improves design process time and prevents from illegal design by a user.

With respect to claim 12, Quintero discloses that configuring step involves answering a plurality of questions presented, wherein the questions to be presented during the configuring step are stored in a database and selected for presentation based on inferences made in the performing step, see (col. 9, lines 65-67 to col. 10, lines 1-24, col. 18, lines 55-67 to col. 19, lines 1-67 to col. 20, lines 1-63).

With respect to claim 13, Quintero discloses that the configuring step further comprises the substep of presenting preferred answers to select questions presented on the user interface, see (col. 9, lines 65-67 to col. 10, lines 1-24, col. 18, lines 55-67 to col. 19, lines 1-67 to col. 20, lines 1-63).

With respect to claim 14, Quintero discloses that the performing step further comprises the substep of performing a rules-based inference in response to project

selections made in the configuring step, see (col. 7, lines 16-67 to col. 8, lines 1-67 to col. 9, lines 1-65).

With respect to claim 15, Quintero discloses that the configuring step further comprises the substeps of graphically selecting parameters to configure the project based upon graphic representations of variations of characteristics of components to be selected for the project, see (col. 4, lines 53-61, col. 5, lines 24-67, col. 6, lines 37-48, col. 8, lines 36-67 to col. 9, lines 1-60);

manipulating schematically configured illustrations of components to be selected for the project, see (col. 4, lines 53-61, col. 5, lines 24-67, col. 6, lines 37-48, col. 8, lines 36-67 to col. 9, lines 1-60).

With respect to claim 16, Quintero discloses that wherein the project to be configured includes a custom product (col. 1, lines 60-67 to col. 2, lines 1-57),

accessing a catalog page to display graphical and textual information pertinent to the product to be configured, see (col. 8, lines 58-67 to col. 9, lines 1-65); accessing a custom shapes editor to size a product upon configuration and to select a customized combination of dimensional parameters for the product, see (col. 11, lines 43-67 to col. 12, lines 1-67); accessing an accessories module containing product accessory information, see (col. 11, lines 43-67 to col. 12, lines 1-67); producing technical specifications containing technical information regarding the project as configured, see (col. 12, lines 34-67 to col. 13, lines 1-67 to col. 14, lines 1-61);

With respect to claim 19, Quintero discloses that the performing step comprises the substep of subjecting selected configuration data of the project to pertinent rules-based inferences, see (col. 8, lines 36-67 to col. 9, lines 1-65).

5. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirose et al (U. S. Patent No. 5,784,286, hereinafter, "Hirose").

With respect to claim 21, Hirose discloses the method of configuring a product, representing product knowledge (design information) in a hierarchical structure, (FIG. 2) wherein the representing step includes storing product category information in frames in the form of nodes of the hierarchical structure and storing product features and options (references) in slots for respective nodes of the structure, see (col. 3, lines 17-31, FIG. 2, col. 5, lines 37-60, FIG. 2, basic components shape, each model component are in the hierarchical structure and information for each node and sub(hierarchical)graph-nodes);

outputting a set of product-specific questions; receiving individual answers to respective ones of the set of product-specific questions, see (C8, C9, FIG. 14, C4, C5, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10);

removing at least one product-specific question from the output set of product-specific questions, prior to receiving an answer to the at least one product-

specific question, in response to answers received (from the questions from output, are presented on a form of user interface for input and output and user interface has many different forms to communicate between the system and user, thus, this limitation is considered as one of a design choice for user interface);

configuring a product with features and options based on inferences made, see (FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10). Hirose discloses frame (FIG. 15, col. 7, lines 19-44) and product knowledge stored in the hierarchical structure based on answers received, see (FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10, col. 8, lines 54-63). Hirose does not explicitly disclose the performing frame-based inferences of the product knowledge. However, Hirose discloses the story teller (FIG. 1, FIG. 5-8, col. 7, lines 45-67 to col. 8, lines 1-67 to col. 9, lines 1-62, FIG. 14, FIG. 15) has the functions that after input, the story teller provides related information based on input and suggests idea to user (FIG. 14, FIG. 15). And the definition of inference is that a, the act or process of deriving logical conclusions from premises known or assumed to be true. b, the act of reasoning from factual knowledge or evidence. Hirose provides idea for components to be put on the system based on knowledge for products, see (col. 7, lines 46-67 to col. 8, lines 1-62). Therefore, it would have been obvious a person having ordinary skill in the art the time invention was made to include the performing frame-based inferences of the product knowledge in the system of Hirose to get idea how to process the design. Because the rule-based inference can guide the user to design the products based on application rules.

With respect to claim 22, Hirose discloses, the representing the hierarchical structure in the form of a tree, wherein frames of the tree maintain parent-child relationships in which a child frame inherits all of the features and options of a parent frame, see (FIG. 2, col. 5, lines 35-60).

With respect to claim 23, Hirose discloses, the filtering inferences made in the performing step by executing a set of rules on the inferences made so as to produce a product configuration, wherein the product configuration is in the form of a window product, see (FIG. 6A-B, col. 8, lines 17-54).

With respect to claim 24, Hirose discloses, the removing a given product-specific question in response to invalidation of a slot in a frame corresponding to the given product-specific question, see (FIG. 10A-B, col. 10, lines 50-67 to col. 11, lines 1-67 to col. 12, lines 1-55).

6. Claims 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirose et al (U. S. Patent No. 5,784,286, hereinafter, "Hirose") in view of Quintero et al (U.S. Patent No. 5,293, 479, hereinafter, "Quintero").

With respect to claim 25, Hirose discloses, machine-readable recording medium for use in configuring a product assembly (col. 5, lines 2-34), the recording medium having stored therein a series of machine executable program instructions executed by

a machine to perform, requesting a product type; prompting a set of product-specific questions selected based on product type requested; providing answers to product-specific questions as prompted, see (Question and Answer, C8, C9, FIG. 14, C4, C5, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10);

configuring the assembly using frame-based inferences (part of limitation as discussed in claim 21 above) of a product knowledge base in response to answers provided, see (M15(d12), FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10, col. 8, lines 54-63);

displaying line drawings of the assembly as configured, wherein the line drawing graphically depicts a type, size and style of the assembly as configured, see (M15(d12), FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10, col. 8, lines 54-63);

the assembly as configured and displayed, see (M15(d12), FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10, col. 8, lines 54-63). Hirose discloses the assembly as configured and displayed (M15(d12), FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10, col. 8, lines 54-63). Hirose does not disclose the quoting a price for the assembly. However, Quintero discloses the component price for assembly, see (col. 2, lines 26-36). Therefore, it would have been obvious a person having ordinary skill in the art the time invention was made to include the quoting a price for the assembly. Because the price of component for assembly can provide a user option to apply different price of component to put on design of product.

With respect to claim 26, Hirose discloses, displaying composite units of the assembly as configured; allowing custom configuration of the assembly as configured by allowing addition and modification of composite units to the assembly as configured displayed, see (M15(d12), FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10, col. 8, lines 54-63).

With respect to claim 27, Hirose discloses, building a product knowledge base by storing product information related to window and door products in a hierarchical tree, wherein the hierarchical tree is composed of frames corresponding to different products and slots within each frame corresponding to attributes of the different products, see (FIG. 2, FIG. 7-8, col. 8, lines 54-67 to col. 9, lines 1-18).

With respect to claim 28, Hirose discloses, the product configuration system for configuring products based on user interaction, user interface, wherein the user interface receives answers from the user corresponding to questions output to the user in the form of a display of graphical and textual representations, see (FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10, col. 8, lines 54-63); graphics formatting and output subsystem, wherein the graphics formatting and output subsystem performs calculations and preparations (col. 5, lines 21-34) for the display of graphical and textual representations to the user interface, see (FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10, col. 8, lines 54-63, col. 3, lines 1-64); data storage subsystem, wherein the data storage subsystem is a repository of product information representing

knowledge of products including type, style and size, see (FIG. 2, FIG. 7-8, col. 8, lines 54-67 to col. 9, lines 1-18); configurator subsystem, wherein the configurator subsystem builds product configurations based on data from the data storage subsystem (FIG. 7) and established data relationships (FIG. 2, FIG. 3, col. 5, lines 61-67 to col. 6, lines 1-55), wherein the configurator includes a core module for facilitating input and output data in the system, and a frame engine for computing available configuration answers for any configuration questions posed to the user at any time (FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10, col. 8, lines 54-63), receiving values of answers received by the user interface and performing the values of answers to other questions automatically, and generating configuration data representing configuration of a desired product, see (FIG. 14, FIG. 15, col. 12, lines 19-67 to col. 13, lines 1-10, col. 8, lines 54-63). Hirose discloses the data analysis subsystem, wherein the data analysis subsystem accesses and processes data from the data storage subsystem, see (col. 1, lines 10-26). Hirose does not explicitly disclose the frame-based expert system and frame-based inferences. However, disclosed system of Hirose is the designing product by component of frame (col. 6, lines 50-67) and Hirose discloses the story teller (FIG. FIG.1, FIG. 5-8, col. 7, lines 45-67 to col. 8, lines 1-67 to col. 9, lines 1-62, FIG. 14, FIG. 15) has the functions that after input, the story teller provides related information based on input and suggests idea to user (C11, FIG. 14, FIG. 15). And the definition of inference is that a, the act or process of deriving logical conclusions from premises known or assumed to be true. b, the act of reasoning from factual knowledge or evidence. Hirose provides idea for components to be put on the system based on

knowledge for products, see (col. 7, lines 46-67 to col. 8, lines 1-62). Therefore, it would have been obvious a person having ordinary skill in the art the time invention was made to include the performing frame-based inferences of the product knowledge in the system of Hirose to get idea how to process the design. Because the rule-based inference can guide the user to design the products based on application rules. Hirose discloses the data analysis subsystem (col. 1, lines 10-26), Hirose does not disclose the pricing engine that uses the configuration data generated by the frame engine to generate pricing for the desired product. However, Quintero discloses the component price for assembling of the desired product, see (col. 2, lines 26-36). Therefore, it would have been obvious a person having ordinary skill in the art the time invention was made to include the quoting a price for the assembly. Because the price of component for assembly can provide a user option to apply different price of component to put on design of product.

With respect to claim 29, Hirose discloses the schematic configurator that displays on the user interface drawings representing the desired product as configured by the configurator subsystem, and allows manipulation and graphical editing of the desired product configuration, wherein the desired product configured is a door assembly, see (FIG. 6A-B, col. 8, lines 17-54).

With respect to claim 30, Hirose discloses the product code engine for both generating and receiving as inputs codes associated with component parts included in

the product information stored in data storage subsystem (FIG. 7-8, database, col. 54-67 to col. 9, lines 1-62), wherein the product code engine facilitates input to and output of the system utilizing such code, see (FIG. 4, col. 6, lines 54-67 to col. 7, lines 1-18).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Maeda et al (U.S. Patent No. 5,966,310) discloses the system for personalised design system that has a personal computer that links to a production server over a link, e.g. the Internet. The system has a camera which allows images of faces or hands to be used in the customisation. The user can select a basic product displayed on the personal computer and downloaded from the production computer.

The user can input simple commands, e.g. under voice input, to require the product to be modified, e.g. in terms of colour or shape. The user input is applied to sensibility classification and converted to CAD data allowing display and subsequent production of the customized product.


Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isaac M Woo whose telephone number is (703) 305-0081. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y Vu can be reached on (703) 305-4393. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

IMW
May 16, 2003


JEAN M. CORRIELUS
PRIMARY EXAMINER